Comparison of Daily Total and Dissolved Metals Results to Applicable Standards (8/9-8/16)

Region 9 has compared all of its current validated data to appropriate risk-based standards. The following comparisons are all point-by-point and not statistically representative of exposure scenarios. EPA compared to these levels to illustrate our precautionary approach to risk communication surrounding public uses of the San Juan River during and after the Gold King Mine release impacts were realized.

The Recreational Screening Levels (RSLs), selected for metal concentrations in sediment and surface water, are meant to be protective for 64-day direct contact and ingestion exposures at a single location with a constant concentration (average). Because that contact duration is may be unrealistic and single points are not estimates of average concentrations, these comparisons are more conservative than typical risk assessment screening. Also, Maximum Contaminant Load standards (MCLs) apply to drinking water at the tap and are not really suitable to exposures in or around the river. Still, EPA contends that these levels serve as good benchmarks for risk communication.

For agricultural uses, EPA compared all surface water data to Navajo Nation screening levels for irrigation and livestock. Similarly, these comparisons so not represent risk estimation but are useful risk communication benchmarks.

Sediment 8/10-16

Reported concentrations of metals in sediment were compared to 64-day recreational screening level (RSL) developed by R8 for this incident. *All metals in sediment concentrations were below (well below in most cases) the sediment RSLs.*

Surface Water 8/9-16

8/16 Summary

1. All metals in surface water concentrations (both dissolved and total) were below the recreational surface water screening levels (RSLs) and all dissolved metals concentrations met (were below) federal Maximum Contaminant Load standards (MCLs).
2. Dissolved aluminum at station SJPF (Piute Farms - 7,800 ppb) exceeded the Navajo Nation (NN) agricultural screening level of 5,000 ppb.

8/14-15 Summary

1. Total cobalt (70 ppb) at Mexican Hat exceeded the RSL (50 ppb).
2. Total and dissolved thallium (3 ppb) at Mexican Hat exceeded the RSL (2 ppb) and the MCL (2 ppb)
3. Aluminum (dissolved) at DS, McElmo Creek, Montezuma Creek, Bluff/Butler and Mexican Hat (range 5,400 – 13,000 ppb) exceeded the NN agricultural screening level (5,000 ppb, dissolved) on 8/14.
4. Lead at Bluff/Butler on 8/14 (120 ppb) and at Mexican Hat on 8/14 & 8/15 (110-120 ppb) exceeded the NN livestock screening level (100 ppb).

8/13 Summary

1. Total aluminum concentrations at 2 stations (DS & MH; 180,000 ppb) marginally exceeded the RSL (170,000 ppb).
2. Dissolved aluminum concentrations at 3 stations (DS, ME & MH; 5,500-95,000 ppb) exceed the NN agricultural screening level (5,000 ppb dissolved).
3. Total cobalt concentrations at 2 stations (DS & MH; 51-59 ppb) marginally exceeded the RSL (50 ppb).
4. The total iron concentration at 1 station (DS; 150,000 ppb) marginally exceeded the RSL (120,000 ppb).
5. Lead (dissolved) at stations DS & MH (39-48 ppb) exceeded the MCL (15 ppb).
6. Lead (total) at station DS (110 ppb) marginally exceeded the NN livestock screening level (100 ppb total) but not the NN agriculture screening level (10,000 ppb total).
7. Dissolved vanadium concentrations at 2 stations (DS & MH; 110 ppb) marginally exceeded the NN agricultural and livestock screening levels (100 ppb dissolved for both).

8/12 Summary

No exceedences of RSLs or NN screening levels were observed on this date.

August 10-11 Summary

1. Lead exceeded the MCL at McElmo Creek, but not the RSL.
2. Some total Al and Co results exceed MCLs (Mexican Hat location) and/or RSLs.

August 9 Summary

1. With a few exceptions (notably at Mexican Hat, the most downstream sample) total metals meet health-based screening levels for a RSLs and most meet MCLs - exceptions being at Mexican Hat, but a few elsewhere.
3. Peaks in metals concentrations for most metals observed at the most downstream location (Mexican Hat).